

## REMARKS/ARGUMENTS

The Final Office Action maintains the rejection of claims 1, 2, and 10 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 7,123,620 to Ma. (“Ma”) and the rejection of claim 11 under 35 U.S.C. § 103(a) as being obvious in view of Ma.

Applicant respectfully submits that the rejections under 35 USC § 102(b) and 103(a) are improper and requests that they be withdrawn for at least the reason set forth below, namely that the cited reference does not disclose or suggest all of the elements recited in independent claims 1 and 10. The Applicant submits these arguments in a response after final with the objective that the appeal procedure can be avoided.

The Examiner states in the Final Office Action of July 21, 2008, that the subset intransitivity constraint is only defined in the preamble of the amended claims and that the term is not recognized by one skilled in the art. While the Applicant does not necessarily agree with the Examiner in this regard, the Examiner’s position on this issue is irrelevant. The Applicant is entitled to be his own lexicographer. In fact, the term “subset intransitivity constraint” **is** defined in the claim and is described in the specification, for example, at paragraphs 0013, 0017, 0018, and 0043. Since Ma does not teach or suggest the subset intransitivity constraint, as defined and described in the claims and the description, the rejections under 35 USC § 102(b) and 103(a) constitute clear reversible legal errors.

Claim 1 recites a method for computing paths through a data network that includes a subnetwork which introduces a subset intransitivity constraint on allowable paths through the data network, wherein each one of two adjacent links have sufficient capacity to convey traffic but it is not possible to transmit that traffic through both links in sequence, the method comprising: using an abstracted map of the network that includes network elements (NEs) and subnetwork elements (SNEs), with links between pairs of the NEs and the SNEs to construct a directed graph that compensates for the subset intransitivity constraint; and applying a routing algorithm to compute paths from a start node to the other nodes of the directed graph.

*Ma fails to disclose a subnetwork which introduces a subset intransitivity constraint on allowable paths through the data network, wherein each one of two adjacent links have sufficient capacity to convey traffic but it is not possible to transmit that traffic through both links in sequence. Therefore, Ma fails to disclose using an abstracted map of the network that includes network elements (NEs) and subnetwork elements (SNEs), with links between pairs of the NEs and the SNEs to construct a directed graph that compensates for the subset intransitivity constraint.*

Ma teaches a method of computing explicit routes through an IP network, in which a global route identifier is assigned to each link, and inserted in messaging passed through the network.

However, the person of ordinary skill in the art will recognize that Ma does not teach, suggest, or even remotely contemplate any of the elements of the claimed subject matter. In particular, the person of ordinary skill in the art will recognize that in a packet-switched network such as an IP network, intransitive constraints, as defined by the claims, simply do not exist. More particularly, in a packet-switched network packets are forwarded on a hop-by-hop basis, with each router forwarding the packet to a next hop based on the destination address and the content of a forwarding table maintained by the node. By definition, the forwarding table contains information regarding all (and only) those addresses that can be reached from the router, and it is assumed that any packet received by the router can be forwarded to any address identified in the forwarding table. Conversely, if the router cannot forward a received packet to an address, or equivalently, a link, then that address (or link) will not appear in the forwarding table.

As described in the background of the present specification and in independent claims 1 and 10, subset intransitive constraints arise from situations in which two adjacent links have sufficient capacity to support a traffic flow, but the traffic cannot be conveyed through both links in sequence. Thus, for example, adjacent links **ab** between **A** and **B**, and **bc** between **B** and **C** may have sufficient capacity to carry the traffic flow, but the traffic cannot transit the links **ab** and then **bc** in sequence – because **B** is unable to pass the traffic between the two links **ab** and **bc**. This situation can arise in cases where wavelength continuity or timeslot continuity across a node are required. The person of ordinary skill in the art will immediately recognize that issues of wavelength and/or timeslot continuity are relevant only at the physical transport

layer of the network; they simply do not exist at higher layers of the protocol stack, which are only concerned with packet addressing.

As such, it will be seen that Ma fails to provide methods or systems “for computing paths through a data network that includes a subnetwork which introduces a subset intransitivity constraint on allowable paths through the data network”, as recited by the claims. The network of Ma is a packet switched network, such as an IP network, in which “subset intransitivity constraints”, as defined by the present application, simply do not exist. It follows that the methods of Ma cannot possibly “construct a directed graph that compensates for the subset intransitivity constraint”, as claimed, because no such subset intransitivity constraint exists in the network. Furthermore, the person of ordinary skill in the art will recognize that the methods of Ma cannot accomplish the claimed operation, even if it were applied to a network that had subset intransitivity constraints, as claimed and as defined by the present application.

More particularly, in the system of Ma, each node constructs its forwarding table based on the links through which it can send traffic, and this same information is used to compute the Explicit Routes, and so compile the Explicit Route Table. Thus, for example, router R3 of Ma (FIG. 7) computes an explicit route to R8 having the path ID “1000”, and so will attempt to route all packets bearing that path ID to router R8, independently of whether those packets are received from R1, R2 or R4.

However, consider a situation in which the links R2-R3 and R3-R8 of Ma are subject to the claimed intransitivity constraint. In this hypothetical case, packets received from routes R1 and R4 can be forwarded (by R3) to router R8, as usual; but R3 cannot forward packets received from R2 to R8 because of the intransitivity constraint. However, since neither R3’s forwarding table nor the explicit route table considers the link through which packets are received, this intransitive constraint will not be detected, and so all packets from R2 (destined for R8) that are received by R3 will be lost. Furthermore, R3 will never inform R2 that R8 cannot be reached through R3, because R3’s link discovery algorithms will confirm that R8 can indeed be reached from R3. The method of Ma does not offer any solution to this problem, and certainly does not teach or suggest the solution offered by the presently claimed subject matter.

In light of the foregoing, it is respectfully submitted that the presently claimed subject matter is clearly distinguishable over Ma. Thus it is believed that the present application is in condition for allowance, and early action in that respect is courteously solicited.

If any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this response, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 19-5113.

Respectfully submitted,

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